

# school of one

The **School of One's** mission is to provide students with personalized, effective, and dynamic classroom instruction customized to their particular academic needs, interests, and learning preferences.

To organize this type of learning, each student receives a unique daily schedule based on his or her academic strengths and needs. As a result, students within the school can receive profoundly different instruction. Each student's schedule is tailored to ability and to the ways he or she learns best. Teachers acquire data about student achievement each day and then adapt their live instructional lessons accordingly.

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*“New York City’s School of One may turn out to be the single most important experiment conducted in education so far. It is the future.”*

—Arthur Levine,

President, Woodrow Wilson National Fellowship Foundation  
President Emeritus, Teachers College at Columbia University



# The School of One Model

## THE LEARNING PROGRESSION

The New York State Department of Education prescribes the specific skills that students must master at each grade level. Those particular skills, when properly sequenced so that one skill builds upon the next, are called a *learning progression*.

In a traditional classroom, teachers lead students through the set curriculum of a particular grade level. All students cover the same material at the same time, regardless of whether some students are behind or ahead of others.

In the **School of One**, the learning progression serves as the basis for all content, but students start at different places along the progression and move through it at their own pace. At the beginning of the program, state test results and additional diagnostic assessments help to determine on which skills each student should focus. These skills are called the student's *playlist*.

Par	NYS Number	Performance Indicator
2	5.N.14	Identify the factors of a given number
2	5.N.15	Find the common factors and the greatest common factor of two numbers
4	5.N.17	Use a variety of strategies to divide three digit numbers by one and two digit numbers
4	5.N.20	Convert improper fractions to mixed numbers and mixed numbers to improper fractions
4	6.N.3	Define and identify the distributive property of multiplication over addition
4	6.N.4	Define and identify the identity and inverse properties of addition and multiplication
4	6.N.7	Express equivalent ratios as proportions
4	6.N.11	Read, write, and identify percents of a whole
6	6.G.4	Determine volume of rectangular prisms by counting cubes and developing formula
4	6.G.5	Identify radius, diameter, chords, and central angles of a circle
2	6.G.6	Understand the relationship between the diameter and radius of a circle
6	6.G.7	Determine the area and circumference of a circle using the appropriate formula
4	6.M.7	Estimate volume, area, and circumference
6	7.S.2	Display data in a circle graph
8	7.S.3	Convert raw data into double bar graphs and double line graphs



## THE STUDENT PROFILE

Students learn in different ways. Some thrive in a traditional classroom environment where teachers deliver instruction to a large number of students. Others perform best while interacting with software. Still others may learn effectively while interacting with classmates to collectively solve a particular problem. Beyond these preferences, all bring their

own interests and life circumstances into the classroom each day, many of which affect how they learn.

In a typical classroom, teachers are responsible for identifying these differences. The challenge of gathering that information, much less using it to provide personalized instruction to a class of 28 students, is a tall order for even the best teachers. In the

**School of One**, students take a comprehensive survey that informs their student profile. Parents and teachers also provide survey information in order to get a more complete picture of the most effective strategies for each learner. This information provides an initial hypothesis of how best to reach each student that can be modified and updated throughout the program.

## INSTRUCTIONAL CONTENT

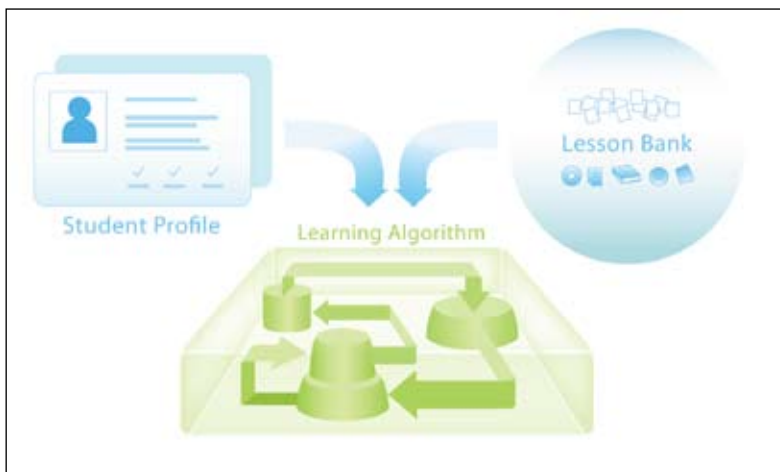
Teachers typically use a variety of instructional materials throughout a school year, supplementing the city's core curriculum with other materials and teacher-generated content. **School of One** leverages a combination of learning modalities, including teacher-led large and small group instruction, small group collaborative activities, virtual software-based instruction, virtual live instruction, independent learning, and one-on-one tutoring. The **School of One** uses educational content from 25 academic partners that in total have contributed more than 2,000 lessons into the program's lesson bank. **School of One's** panel of math experts carefully review each lesson for quality and catalog a series of attributes about each one, such as the skill each lesson covers, the applicable learning modalities,

and other key information about how each lesson can best be used. This information enables the system to find the most effective match between each student's profile and the most appropriate instructional content.

## THE LEARNING ALGORITHM

In a typical classroom, matching different student profiles with different types of instructional content is nearly impossible. There are simply too many variables and too little time to expect any teacher to effectively organize each school day around the individual needs and interests of each student.

In the **School of One**, the Learning Algorithm analyzes the updated information in the student profile and the lesson bank and recommends lessons for each student during the course of the day. The



algorithm considers variables such as available learning spaces, projected noise levels, optimal class sizes, and technological requirements for launching the content. Finally, it then generates a unique daily schedule for each student and teacher.

## HUMAN CAPITAL

In most classrooms, teachers are responsible for teaching all of the standards set forth by the state from September to June. Lessons are delivered to all students at once and teachers generally do not deliver the same one again in the course of a school year. This is true for both early career and veteran teachers, whose job responsibilities are indistinguishable despite their differences in skill.



The **School of One** human capital model works differently. Teachers are responsible for a defined set of skills on the learning progression, rather than all of them. Lessons are delivered to groups of students that can range from as few as three and as many as twenty-four. Because students are progressing at their own rate, teachers frequently deliver the same lesson more than one time in a school year, albeit to different groups of students. This allows them to refine their understanding of common misconceptions about each skill and to refine the quality of their lessons based on data. Additionally the role of early career teachers (whom we call *teacher residents*) is focused initially on small group instruction and supporting online instruction until they are ready for more complex assignments.

# Bringing the **School of One** Model to Life

The **School of One** team is designing the program so that it can ultimately work within the context of the regular school day across a variety of grade levels, subjects, and schools. Meeting this goal requires the iterative development of prototypes that expand in complexity and scalability over time.

The 2009 prototype focused on a summer school implementation for one subject (math), in one grade (7th), on one campus, and for 80 students.

The spring 2010 prototypes are launching in two phases. The first phase is an after-school program for sixth-grade math. It takes place on three campuses and serves 240 students. This program will last for approximately 8 weeks and will allow us to begin to test the scalability of the model. The second phase is an in-school program also for sixth-grade math on one campus and for approximately 200 students. This program will last for two months and will allow us to begin to test the in-school implementation of the model.

In fall 2010, we plan to launch an in-school program for math across two grades (6th and 7th), on three campuses, for approximately 1200 students.



## SITE SELECTION

The NYC Department of Education invited all NYC middle school principals to apply to host a **School of One** spring 2010 program. Participating schools needed to meet particular technology requirements (such as high speed wireless connectivity) and enrollment requirements (at least 200 students per grade).

**School of One** selected three schools: MS 131 in Manhattan (which hosted the summer 2009 pilot), IS 339 in the Bronx, and IS 228 in Brooklyn.

## SPACE REDESIGN

**School of One** requires the flexible use of rooms and furniture to support varied student groupings. The American Architectural Foundation (AAF) sponsored a design

	Summer 2009	Spring 2010 after-school	Spring 2010 in-school	Fall 2010
No. of schools	1	3	1	3
No. students participating	80	240	200	1200



charrette with some of the nation's leading architects and designers to help to visualize the physical design for each site's implementation. Teams from the NYC School Construction Authority and NYCDOE's Division of School Facilities transformed the spaces at each of the three sites—removing walls, painting, constructing dividers, installing carpet, mounting monitors, designing signs, and setting up furniture.



**Before**



**After**

## SCHOOL STAFF

The **School of One** team worked closely with each school's leadership to select four program teachers for the after-school pilot. The team also identified two teacher-residents from local universities and three high school interns with a strong record of mathematics achievement. The group participated in a two-day professional development and planning session to prepare.

## STUDENT ENROLLMENT

All sixth graders the three sites were invited to participate in the program. Of those, 260 across all three sites submitted permission forms and were selected into the program.

## THE STUDENT EXPERIENCE

Prior to starting the program, students receive an orientation to **School of One**. They learn how their daily schedule works, as well as how to use their logins and passwords, navigate the software, take daily online quizzes (the *playlist update*), and transition and work in the learning space.

When students start the program, they are assigned to one of four teams that serve as their home base. These teams compete with each other to earn points based on student attendance, academic performance, and organized team activities.

Homebase teachers announce team points (which can earn students prizes) and check in on students to ensure that they are progressing.

## PROGRAM EVALUATION

The Education Development Center's Center for Children and Technology (CCT) conducted a formal evaluation of the 2009 summer pilot program. That evaluation found that over the course of the 20 day



summer program, students gained 28 percentage points from pre-test to post-test. In addition, 79 percent of students indicated they liked going to **School of One** each day while 75 percent of teachers thought it had the power to transform the way that instruction is individualized in NYC public schools. The New York City Department of Education's Research and Policy Support Group will be conducting the evaluation of the spring 2010 pilot.

**School of One** would like to recognize the generous support and contributions from the following divisions within the New York City Department of Education:

- Division of Accountability and Achievement Resources
- Division of Budget Operations and Review
- Division of Contracts and Procurement
- Division of Strategy and Innovation
- Division of Human Resources
- Division of Instructional and Information Technology
- Division of School Facilities
- Division of School Support

- Division of Teaching and Learning
- Office of Communications and Media Relations
- Office of Family Engagement and Advocacy
- Office of Legal Services
- Office of Strategic Partnerships

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